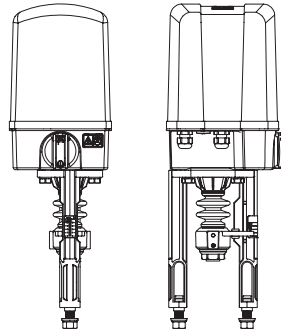


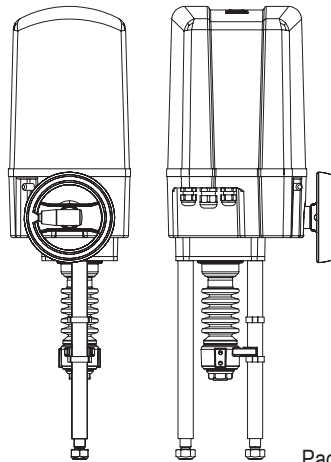
Electric thrust actuator ARI-PREMIO

ARI-PREMIO® 2,2 - 5 kN (495 - 1124 lbf)  
Electric thrust actuator

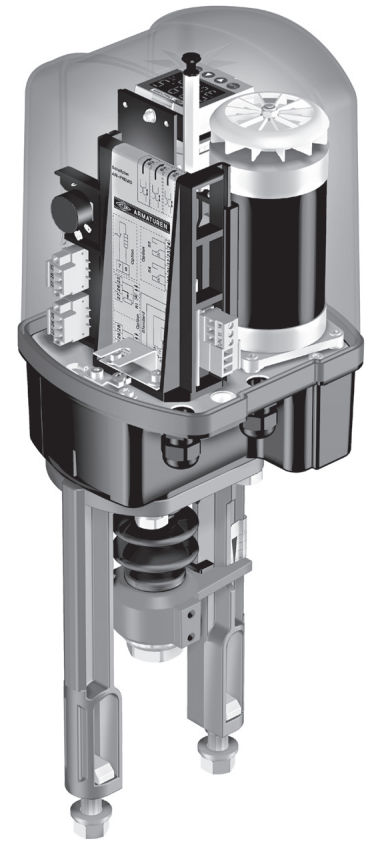


Page 2

ARI-PREMIO® 12 - 15 kN (2698 - 3372 lbf)  
Electric thrust actuator



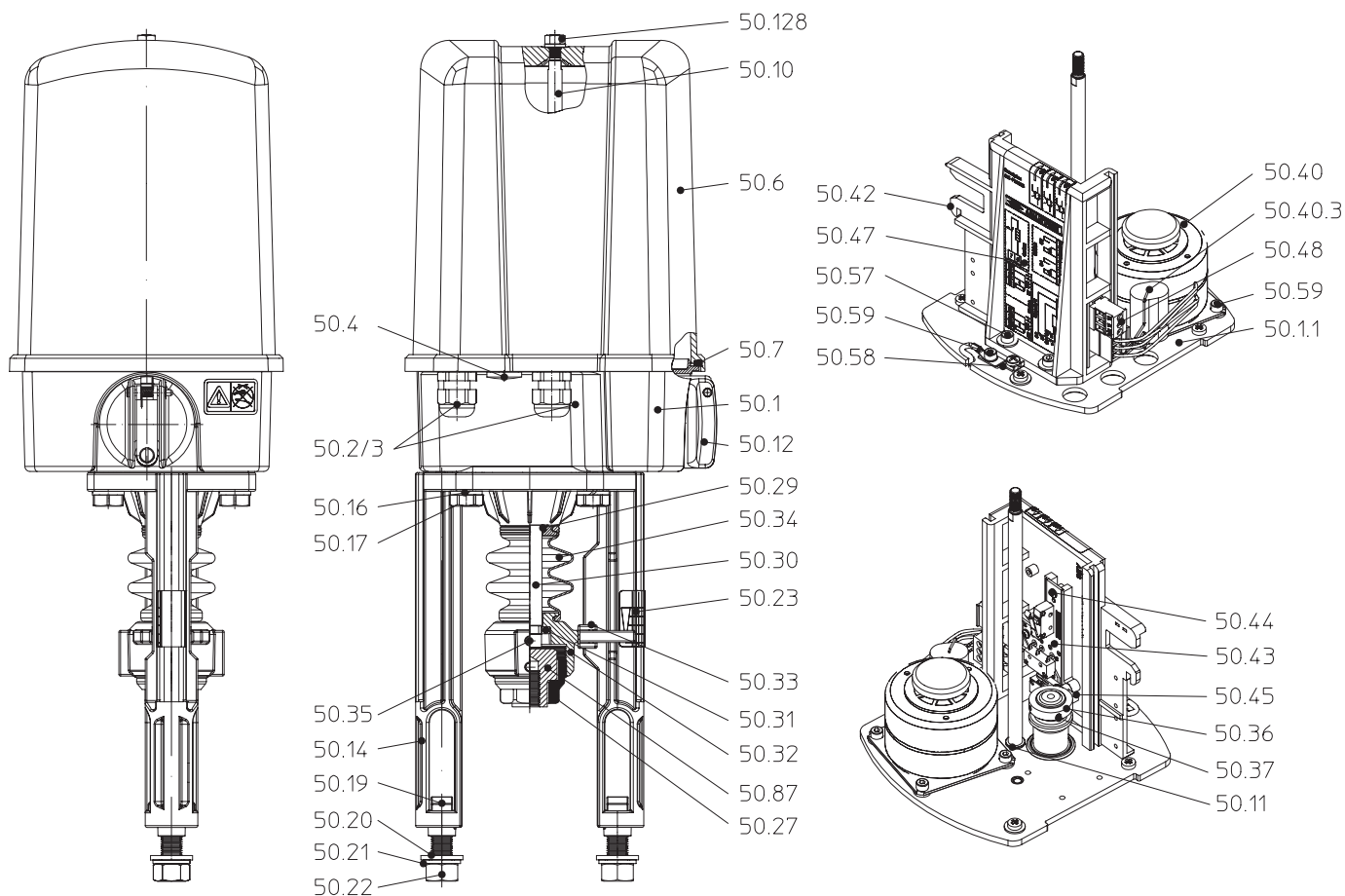
Page 4



**Features**

- 2 torque switches
- Handwheel
- Operative ambient temperatures  
-20°C up to +70°C (-4 °F up to +158 °F)
- Enclosure IP 65
- Additional devices available, e.g. potentiometer
- Travel indicator

## Electric actuator ARI-PREMIO 2,2 - 5 kN (495 - 1124 lbf)



Pos.	Description
50.1	Gearbox
50.2	Cable gland 2 x M16x1,5
50.4	Sealing plug 1 x M16x1,5
50.6	Hood
50.7	Hood seal
50.10	Column
50.12	Handwheel
50.14	Yoke
50.19	T-head bolt DIN 261-M12x40
50.23	Lift dial
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature
50.34	Bellow

Pos.	Description
50.36	Bushing
50.37	Grub screw DIN 913 - M3x5
50.40	Synchronous motor, complete
50.40.3	Capacitor
50.42	Board support
50.43	Standard board
50.43.1	Travel switch (valve - open) S3
50.43.2	Torque switch
50.45	Shift lever
50.47	Circuit diagram sticker, standard
50.48	Connector, 3-pole (standard)
50.58	Protective conductor terminal
50.87	Threaded bush
50.128	Collar nut Seal lock M6

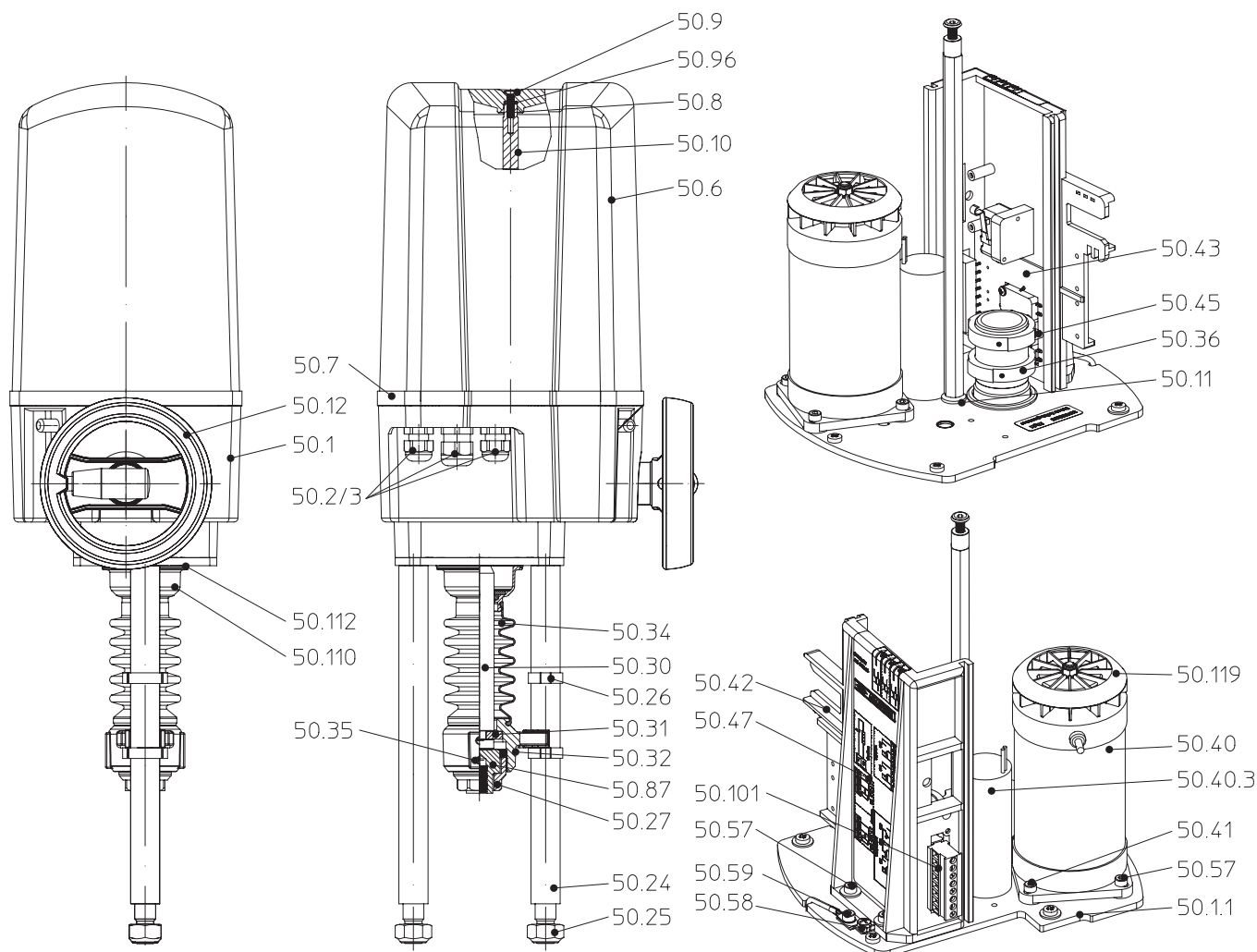
Type	ARI-PREMIO 2,2 kN (495 lbf)		ARI-PREMIO 5 kN (1124 lbf)	
Thrust force	<b>2,2 kN (495 lbf)</b>		<b>5,0 kN (1124 lbf)</b>	
Travel distance	max. 50 mm (1,97 inch)			
Duty classification in accordance with EN 60034-1/A11	S3 80% DC / max. 1200 c/h		S3 50% 1200 c/h	
Control speed	0,38 mm/s (0,01 inch/s)		0,38 mm/s (0,01 inch/s)	1,0 mm/s (0,04 inch/s)
Motor voltage	230V - 50Hz / 60Hz <sup>1)</sup>			
Power consumption	VA	21	33	75
		For power consumption of other voltages and frequencies refer to type plate or on request.		
Torque switch	2 pcs., fixed wiring, switching capacity 10A, 250V~			
Travel switch <sup>2)</sup>	1 pcs., fixed wiring switching capacity 10A, 250V~			
Enclosure EN 60529	IP 65			
Max. storage temperature	-40 °C ... +85 °C (-40 °F ... +185 °F)			
Max. permissible ambient temperature	-20 °C ... +70 °C (-4 °F ... +158 °F)			
	For operation outside or at freezing temperature a heating is recommended.			
Top mounted handwheel	Yes (always running)			
Mounting position	Horizontally to vertical above valve body (any position 90° from vertical).			
Gear lubricant	Klüber / Isoflex Topas NB152			
Weight	5,4 kg (11,9 lb)		6,0 kg (13,2 lb)	6,5 kg (14,3 lb)

Accessories	ARI-PREMIO 2,2 kN (495 lbf)		ARI-PREMIO 5 kN (1124 lbf)	
Thrust force	<b>2,2 kN (495 lbf)</b>		<b>5,0 kN (1124 lbf)</b>	
Trip slide for travel switch S3	for actuating travel switch S3 / retracting spindle (the travel switch S3 exists in the standard version)			
Additional intermediate position switches S4, S5 <sup>2)</sup>	2 additional intermediate position switches S4 and S5, zero potential, switching capacity 10A, 250V~			
Additional intermediate switches for Low-voltage / electronic system S4, S5 <sup>2)</sup>	2 additional intermediate position switches S4 and S5, zero potential, with gold contacts, for low switching capacities and at aggressive atmosphere, switching capacity max. 0,1A, 4-30V			
Potentiometer <sup>2)</sup>	Maximum 2 possible. Different resistance-values: 100 Ohm, 200 Ohm, 500 Ohm, 1000 Ohm 1,5 watt			
TÜV-approved potentiometer <sup>2)</sup>	max. 2 only Ohmage 5000 or optional: 100, 200, 500, 1000 Ohm; 1,5 Watt; Not compatible for use with the heating resistor or RI2!! No retrofitting possible!			
Electronic position controller ES 11 <sup>2)</sup>	0 (2) ... 10V; 0 (4) ... 20 mA - Only one potentiometer possible. Not compatible for use with the temperature controller.			
Electronic position indicator RI 21 <sup>2)</sup>	0 (2) ... 10V; 0 (4) ... 20 mA - Only one potentiometer possible. Using the temperature controller, installation is only possible in the control cabinet.			
Electronic position indicator RI 32 <sup>2)</sup>	2 ... 10V; 4 ... 20 mA - Only one potentiometer possible.			
Heating resistor	(automatic switching circuit) 230 VAC, 115VAC, 24VAC, 15 Watt			
Additional voltage / frequencies	24V - 50/60Hz <sup>1)</sup>		24V - 50Hz	
	115V - 50/60Hz <sup>1)</sup>		24V - 60Hz <sup>1)</sup> 24V - DC (Option DC-Modul necessary) 115V - 50/60Hz <sup>1)</sup>	
Standard-voltage connection board PA	2 torque switches and 1 travel switch, zero potential, switching capacity 10A, 250V~			
Low-voltage connection board (electronic) NA	2 torque switches and 1 travel switch, zero potential, for free wiring, with gold contacts, for low switching capacities and at aggressive atmosphere, switching capacity max. 0,1A, 4-30V			
Integrated temperature controller dTRON 316	Temperature controller (3-state stepper controller) in microprocessor technology. Control range: -200°C to 850°C (-328°F bis 1562°F) (resistance thermometer) Voltage: 24V, 115V or 230V 50/60Hz Compatible with resistance thermometers and thermocouples (provided by customer), standardized active current or voltage signals. Not compatible for use with the ES 11!			
DC-Module 3-step converter	To control ARI-PREMIO 230V-50Hz with 24VDC. Not compatible for use with the temperature controller!			

<sup>1)</sup> Control speed and power consumption are 20% higher at frequency of 60 Hz.

<sup>2)</sup> Option trip slide necessary

## Electric actuator ARI-PREMIO 12 - 15kN (2698 - 3372 lbf)



Pos.	Description
50.1	Gearbox
50.2	Cable gland 2 x M16 x 1,5 / 1 x M20 x 1,5
50.6	Hood
50.7	Hood seal
50.8	Counter-sunk screw DIN EN ISO 10642 - M5x20
50.9	Sealing washer DIN EN ISO 7089 - 5,3
50.10	Column
50.12	Handwheel (engageable)
50.24	Distance column
50.25	Hexagon nut DIN EN ISO 4032 - M12
50.26	2-ear clamp
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature

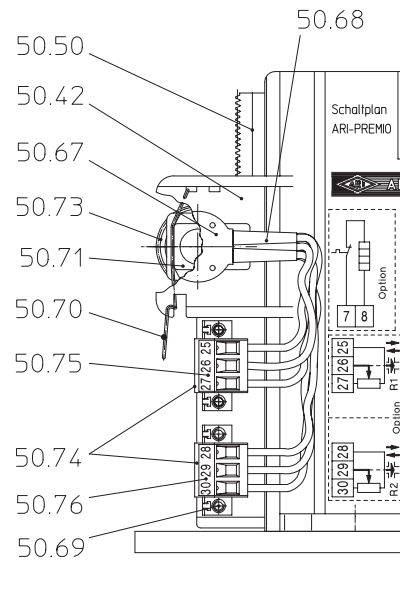
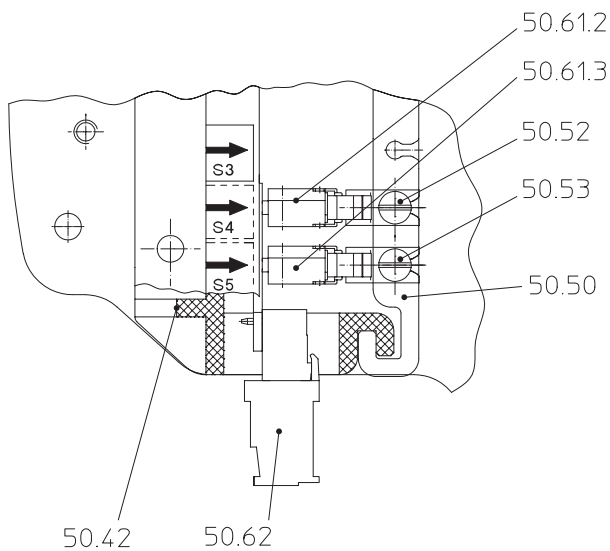
Pos.	Description
50.34	Bellow
50.36	Set collar
50.37	Grub screw DIN 913 - M3x5
50.40	Synchronous motor, complete
50.40.3	Capacitor
50.42	Board support
50.43	Standard board
50.43.1	Travel switch (valve - open) S3
50.43.2	Torque switch
50.45	Shift lever
50.47	Circuit diagram sticker
50.58	Protective conductor terminal
50.87	Threaded bush
50.101	Connector, 8-pole
50.119	Fan wheel

Type	ARI-PREMIO 12 kN (2698 lbf)		ARI-PREMIO 15 kN (3372 lbf)
Thrust forc	<b>12,0 kN (2698 lbf)</b>		<b>15,0 kN (3372 lbf)</b>
Travel distance	max. 80 mm (3,15 inch)		
Duty classification in accordance with EN 60034-1/A11	S3 50% DC / max. 1200 c/h		
Control speed	0,38 mm/s (0,01 inch/s)	0,79 mm/s (0,03 inch/s)	0,38 mm/s (0,01 inch/s)
Motor voltage	230V - 50Hz		
Power consumption	VA 69	85	69
	For power consumption of other voltages and frequencies refer to type plate or on request.		
Torque switch	2 pcs., fixed wiring, switching capacity 16A, 250V~		
Travel switch <sup>2)</sup>	1 pcs., fixed wiring switching capacity 16A, 250V~		
Enclosure EN 60529	IP 65		
Max. storage temperature	-40 °C ... +85 °C		
Max. permissible ambient temperature	-20 °C ... +70 °C For operation outside or at freezing temperature a heating is recommended.		
Top mounted handwheel	Yes (engageable)		
Mounting position	Horizontally to vertical above valve body (any position 90° from vertical).		
Gear lubricant	Molyduval Valenzia H2		
Weight	10,5 kg (22,1 lb)		

Accessories für Type	ARI-PREMIO 12 kN (2698 lbf)		ARI-PREMIO 15 kN (3372 lbf)
Thrust force	<b>12,0 kN (2698 lbf)</b>		<b>15,0 kN (3372 lbf)</b>
Trip slide for travel switch S3	for actuating travel switch S3 / retracting spindle (the travel switch S3 exists in the standard version)		
Additional intermediate position switches S4, S5 <sup>2)</sup>	2 additional intermediate position switches S4 and S5, zero potential, switching capacity 10A, 250V~		
Additional intermediate position switches for Low-voltage / electronic system S4, S5 <sup>2)</sup>	2 additional intermediate position switches S4 and S5, zero potential, with gold contacts, for low switching capacities and at aggressive atmosphere, switching capacity max. 0,1A, 4-30V		
Potentiometer <sup>2)</sup>	Maximum 2 possible. Different resistance-values: 100 Ohm, 200 Ohm, 500 Ohm, 1000 Ohm 1,5 Watt		
TÜV-approved potentiometer <sup>2)</sup>	max. 2 only Ohmage 5000 or optional: 100, 200, 500, 1000 Ohm; 1,5 Watt; Not compatible for use with the heating resistor or RI2!! No retrofitting possible!		
Electronic position controller ES 11 <sup>2)</sup>	0 (2) ... 10V; 0 (4) ... 20 mA - Only one potentiometer possible. Not compatible for use with the temperature controller.		
Electronic position indicator RI 21 <sup>2)</sup>	0 (2) ... 10V; 0 (4) ... 20 mA - Only one potentiometer possible. Using the temperature controller, installation is only possible in the control cabinet.		
Electronic position indicator RI 32 <sup>2)</sup>	2 ... 10V; 4 ... 20 mA - Only one potentiometer possible.		
Heating resistor	(automatic switching circuit) 230 VAC, 115VAC, 24VAC, 15 Watt		
Additional voltage / frequencies	24V - 50Hz / 24V - 60Hz <sup>1)</sup> 115V - 50Hz / 115V - 60Hz <sup>1)</sup> 230V - 60Hz <sup>1)</sup> 3~400V - 50Hz / 3~400V - 60Hz <sup>1)</sup>	24V - 50Hz / 24V - 60Hz <sup>1)</sup> 24V - DC (Option DC-Modul necessary) 115V - 50Hz / 115V - 60Hz <sup>1)</sup> 230V - 60Hz <sup>1)</sup> 3~400V - 50Hz / 3~400V - 60Hz <sup>1)</sup>	
Standard-voltage connection board PA	Possible at standard design		
Low-voltage connection board (electronic) NA	2 torque switches and 1 travel switch, zero potential, for free wiring, with gold contacts, for low switching capacities and at aggressive atmosphere, switching capacity max. 0,1A, 4-30V		
Integrated temperature controller dTRON 316	Temperature controller (3-state stepper controller) in microprocessor technology. Control range: -200°C to 850°C (-328°F bis 1562°F) (resistance thermometer) Voltage: 24V, 115V or 230V 50/60Hz Compatible with resistance thermometers and thermocouples (provided by customer), standardized active current or voltage signals. Not compatible for use with the ES11!		
Integrated reversing contactor	Actuator with 400V-50Hz and 440V-60Hz Only 1 electronic module possible!		
Phase control relay	Only in addition with integrated reversing contactor!		
DC-Module 3-step converter	To control ARI-PREMIO 230V-50Hz with 24VDC. Not compatible for use with the temperature controller!		

<sup>1)</sup> Control speed and power consumption are 20% higher at frequency of 60 Hz.

<sup>2)</sup> Option trip slide necessary


**Additional travel switch**

Pos.	Description
50.42	Board support
50.50	Trip slide
50.52	Setting spindle for switch S4
50.53	Setting spindle for switch S5
50.61.2	Travel switch S4
50.61.3	Travel switch S5
50.62	Connector, 6-pole

**Potentiometer**

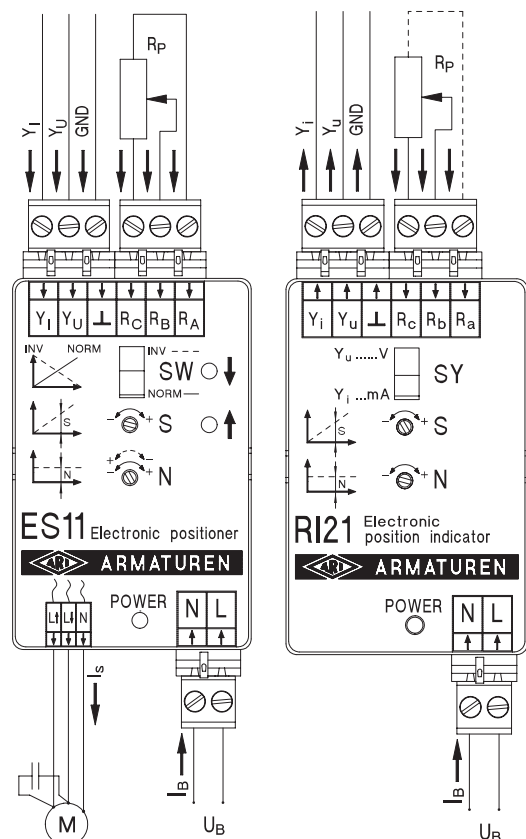
Pos.	Description
50.42	Board support
50.50	Trip slide
50.67	Potentiometer
50.68	Connecting cable
50.69	Self-tapping screw
50.70	Pinch spring
50.71	Slide block
50.73	Pinion
50.74	Connector, 3-pole

**Electronic position controller ES11**

Operating voltage	$U_B$	24V-50/60Hz	115V-50/60Hz	230V-50/60Hz
Operating current without load	$I_B$	150 mA	40 mA	20 mA
Input control signal	$Y_U$	0 (2) .... 10V DC - (RI = 30 kOhm)		
Input control signal	$Y_I$	0 (4) .... 20 mA DC - (RI = 125 Ohm)		
Potentiometer input	$R_P$	0 .... 10 kOhm, recommended 0 .... 1 kOhm (Potentiometer can be used only as a voltage divider)		
Three-step switching current	$I_S$	4A max.		

**Electronic position indicator RI21**

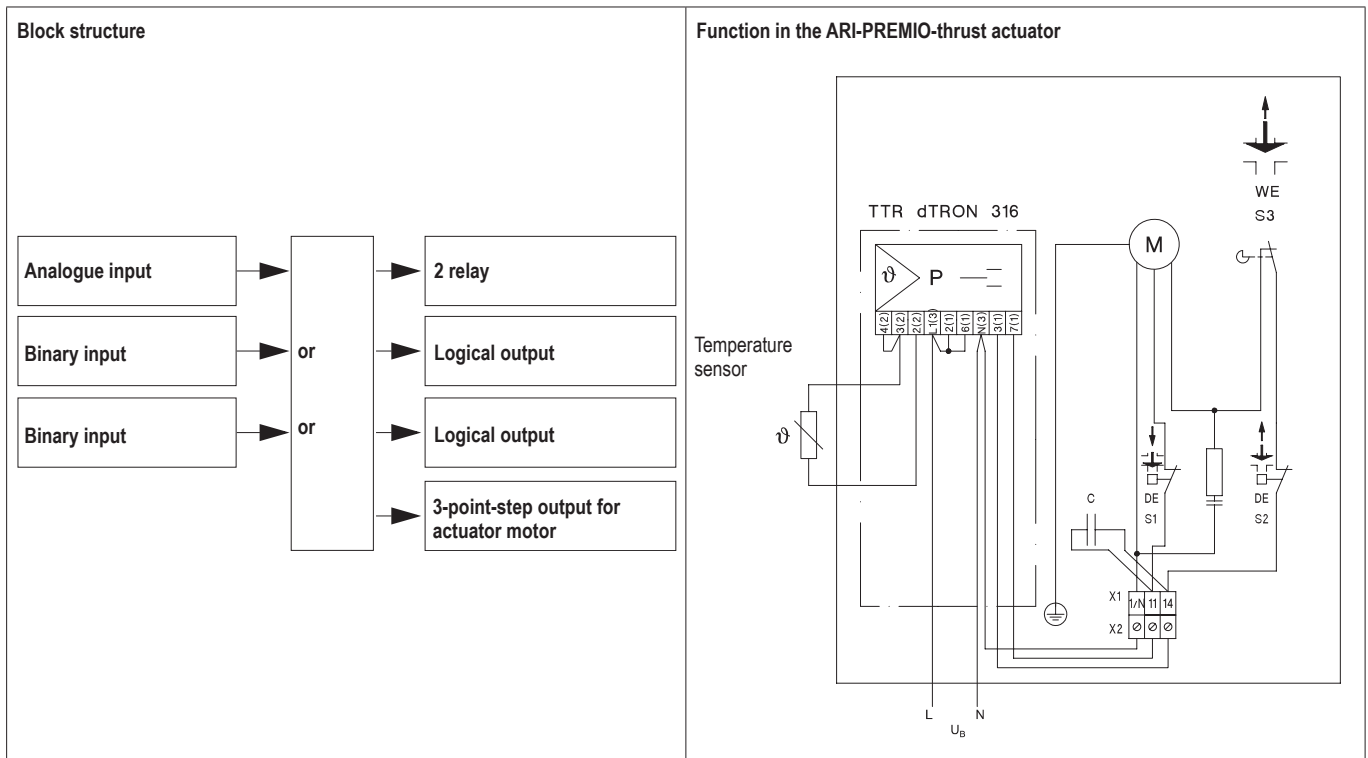
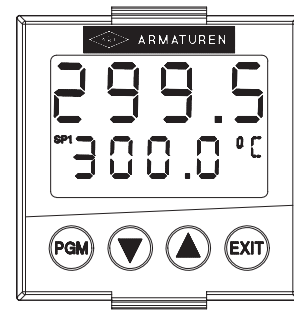
Operating voltage	$U_B$	24V-50/60Hz	115V-50/60Hz	230V-50/60Hz
Operating current without load	$I_B$	150 mA	40 mA	20 mA
Output control signal	$Y_U$	0 (2) .... 10V DC - (load resistance > 1000 Ohm)		
Output control signal	$Y_I$	0 (4) .... 20 mA DC - (load resistance max. 800 Ohm)		
Resistance	$R_P$	0 .... 1000 Ohm		



### Integrated temperature controller dTRON 316

#### Features

- programmable analogue input
- 2 auto-tune methods
- Program function with 8 program sections or slope-function
- 2 Timer functions
- 4 limit-comparators
- Interlock for keyboard and level
- 4 programmable setpoints, two parameter sets
- 4 digit resolution (max. 2 decimal places)
- Controller characteristic P, PD, PI or PID
- Actual value input by usual temperature sensors (see in table)
- 2 relay outputs 230V/3A (shutter)
- 1 three-step output for actuator motor (by solid state relay 4A)
- 2 combinable binary inputs / binary outputs



#### Input thermocouples

Description	Measuring range
Fe-CuNi „L“	-200 ...+900°C (-328 ...+1652°F)
Fe-CuNi „J“ DIN EN 60584	-200 ...+1200°C (-328 ...+2192°F)
Cu-CuNi „U“	-200 ...+600°C (-328 ...+1112°F)
Cu-CuNi „T“ DIN EN 60584	-200 ...+400°C (-328 ...+752°F)
NiCr-Ni „K“ DIN EN 60584	-200 ...+1372°C (-328 ...+2501°F)
NiCr-CuNi „E“ DIN EN 60584	-200 ...+1000°C (-328 ...+1832°F)
NiCrSi-NiSi „N“ DIN EN 60584	-100 ...+1300°C (-148 ...+2372°F)
Pt10Rh-Pt „S“ DIN EN 60584	0 .....+1768°C (32 ...+3214°F)
Pt13Rh-Pt „R“ DIN EN 60584	0 .....+1768°C (32 ...+3214°F)
Pt30Rh-Pt6Rh „B“ DIN EN 60584	0 .....+1820°C (32 ...+3308°F)
W5Re-W26Re „C“	0 .....+2320°C (32 ...+4208°F)
W3Re-W25Re „D“	0 .....+2495°C (32 ...+4523°F)
W3Re-W26Re	0 .....+2400°C (32 ...+4352°F)

#### Input resistance thermometer

Description	Type of connection	Measuring range
Pt 100 (standard)	2-wire / 3-wire / 4-wire	-200...+850°C (328 ...+1562°F)
Pt 500	2-wire / 3-wire / 4-wire	-200...+850°C (328 ...+1562°F)
Pt 1000	2-wire / 3-wire / 4-wire	-200...+850°C (328 ...+1562°F)
KTY11-6	2-wire	-50...+150°C (-58 ...+302°F)

Sensor output resistance:  
max. 300hm each circuit at 3- and 4-wire connection

Measurement current: approx. 250µA

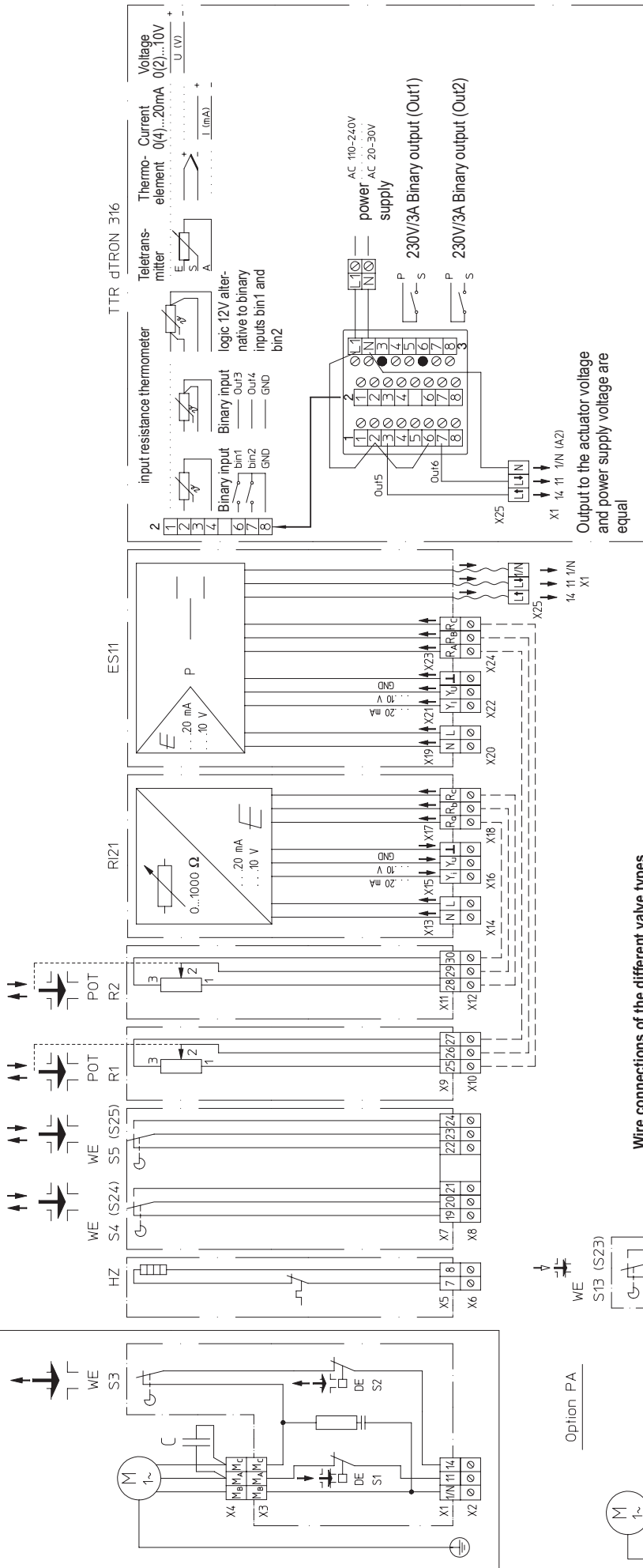
Circuit adjustment:

- at 3- and 4-wire connection not necessary.

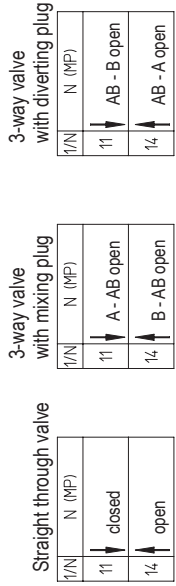
- at 2-wire connection a circuit adjustment can be done with software by correcting the actual value.

#### Input standardized active current or voltage signals

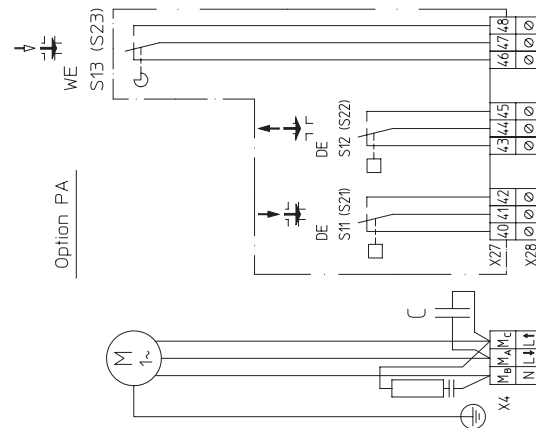
Description	Measuring range
Voltage	0 (2) ... 10V, input resistance Re > 100kOhm
Current	0 (4) ... 20mA, voltage drop ≤ 1,5 V



Wire connections of the different valve types



**Options NA**  
same design but no RC circuit and switches with gold contacts (Switching capacity 0.1A, 4-30V)



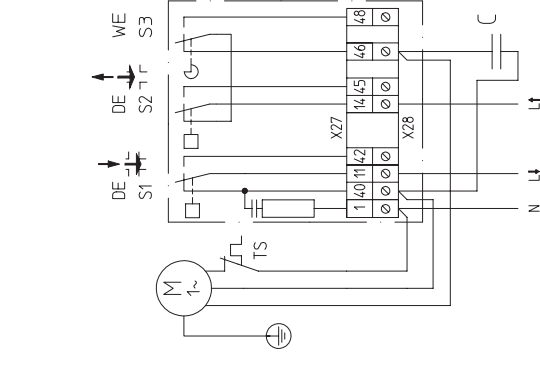
<b>HZ</b>	Heating resistor
<b>DE</b>	Torque switch
<b>WE (S3)</b>	Travel switch for limiting the travel distance in opening direction
<b>R1, R2</b>	Electronic position indicator
<b>ES11</b>	Electronic position controller
<b>NA</b>	Low-voltage connection board, potentialfrei
<b>PA</b>	Standard-voltage connection board, zero potential
<b>POT</b>	Potentiometer
<b>WE</b>	Travel switch, zero potential
<b>TTR</b>	Electronic temperature controller dTRON316

Output to the actuator voltage and power supply voltage are equal



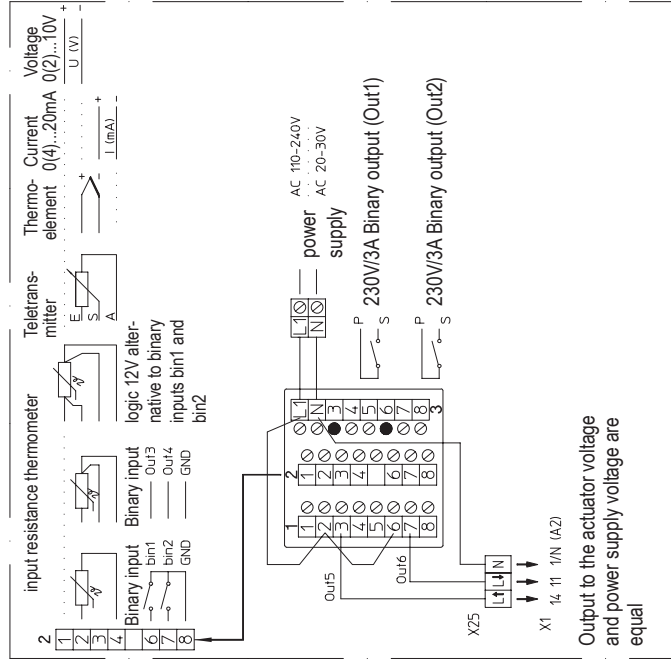
ARI-PREMIO 12-15kN, 1Ph~

standard



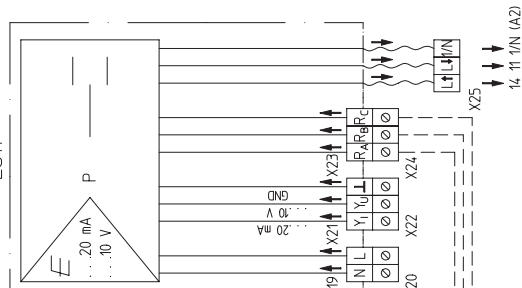
Accessories

TTR dTRON 316

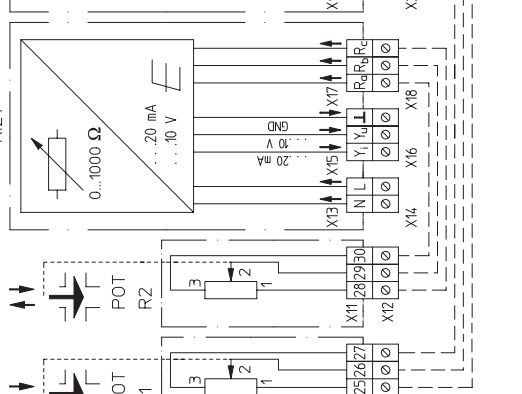


Output to the actuator voltage and power supply voltage are equal

ES11

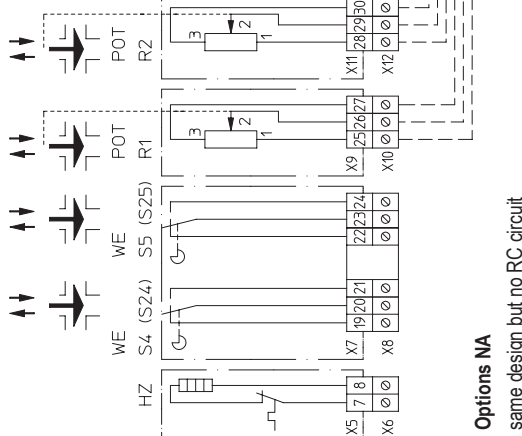


RI21



### Options NA

same design but no RC circuit and switches with gold contacts (Switching capacity 0.1A, 4-30V)



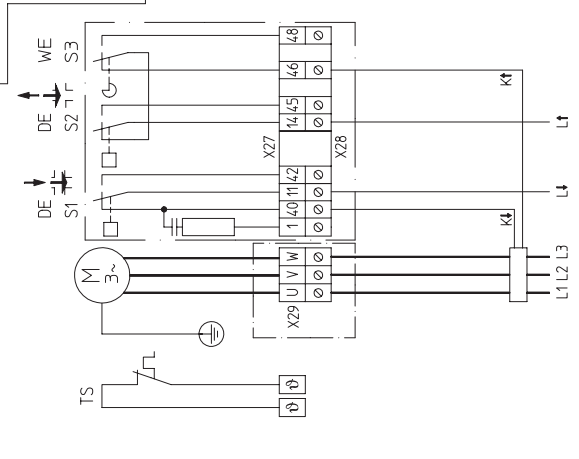
### Wire connections of the different valve types

Valve Type	Terminal 1	Terminal 2	Terminal 3
Straight through valve	1/N	N (MP)	14
3-way valve with mixing plug	1/N	N (MP)	11, 14
3-way valve with diverting plug	1/N	N (MP)	11, 14

For external reversing contactor connect at L1, L2, L3.  
L1, L2, L3 - actuator spindle drives in  
L3, L2, L1 - actuator spindle drives out  
In all external reversing circuits the torque switches S1 and S2/S3 have to be used to switch off the actuator motor.

ARI-PREMIO 12-15kN, 3Ph~

standard

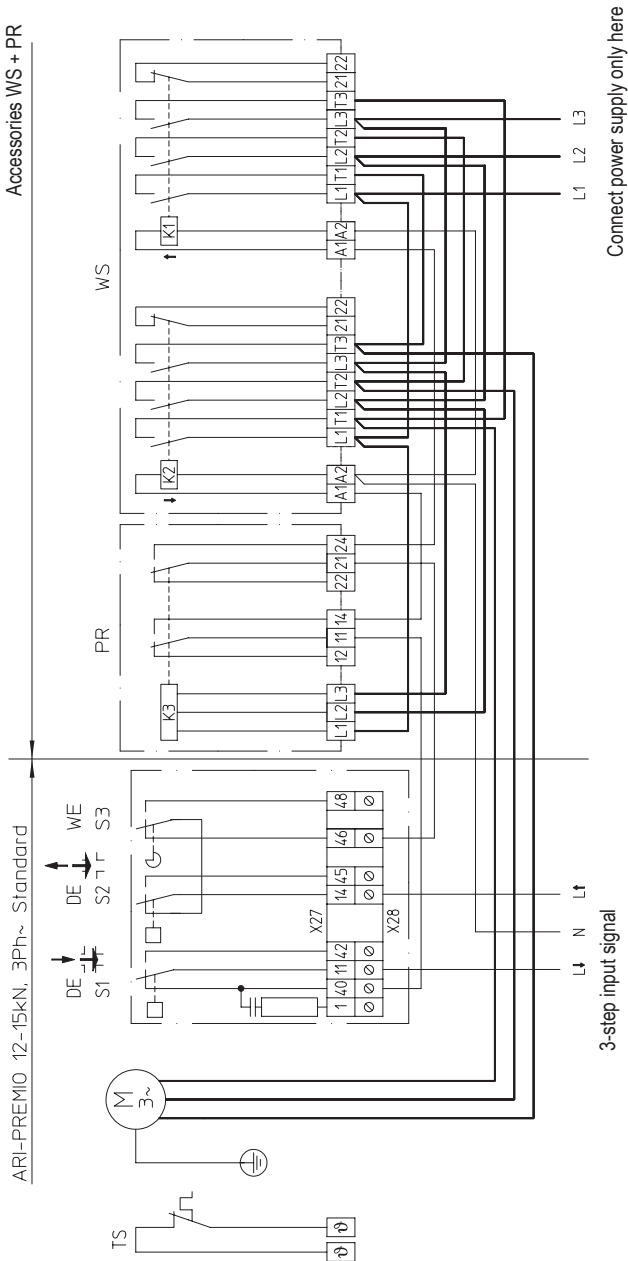


HZ	Heating resistor
DE	Torque switch
WE (S3)	Travel switch for limiting the travel distance in opening direction
RI21	Electronic position indicator
ES11	Electronic position controller
NA	Low-voltage connection board, zero potential
POT	Potentiometer
WE	Travel switch, zero potential
TTR	Electronic temperature controller dTRON316
WS	Reversing contactor
PR	Phase control relay
TS	Temperature switch (motor)



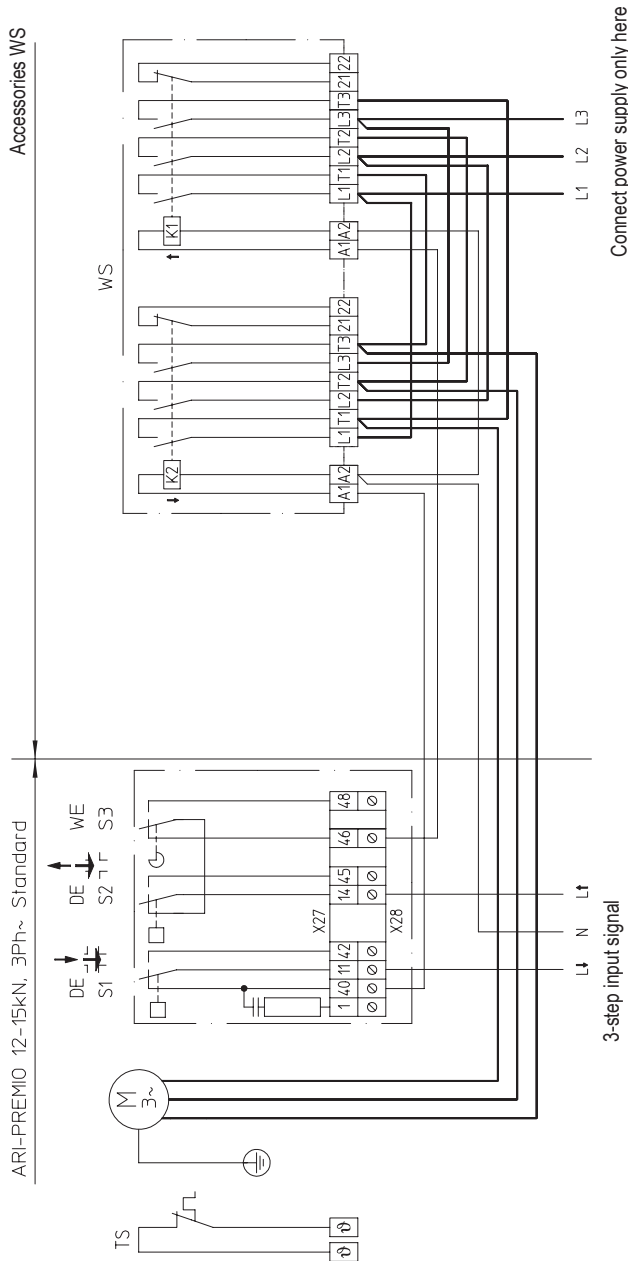
Please check the operating direction of the actuator!

Accessories WS + PR



Connect power supply only here

Accessories WS

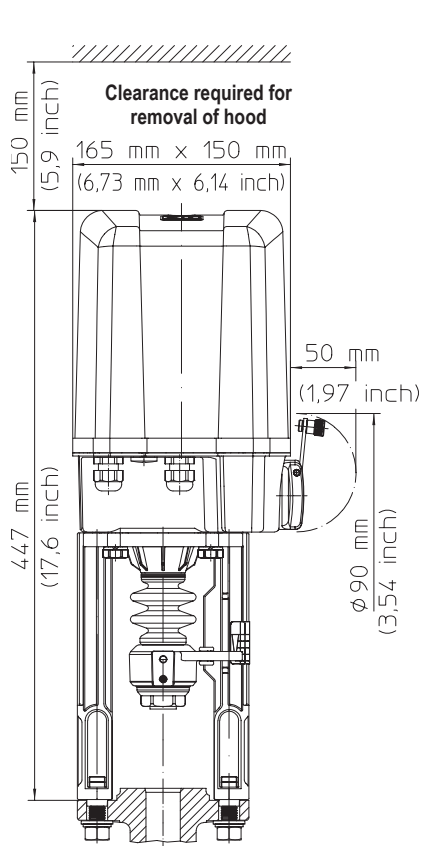


Connect power supply only here

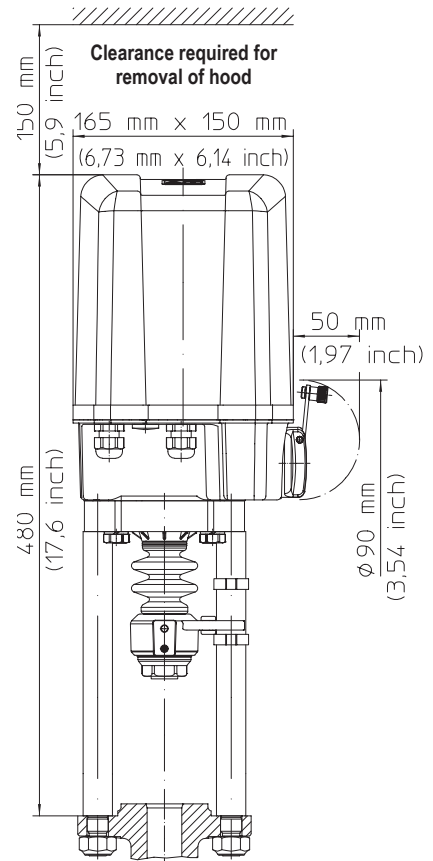
Wire connections of the different valve types

Straight through valve		3-way valve with mixing plug		3-way valve with diverting plug	
1/N	N (MP)	1/N	N (MP)	1/N	N (MP)
11	closed	11	A - AB open	11	AB - B open
14	open	14	B - AB open	14	AB - A open

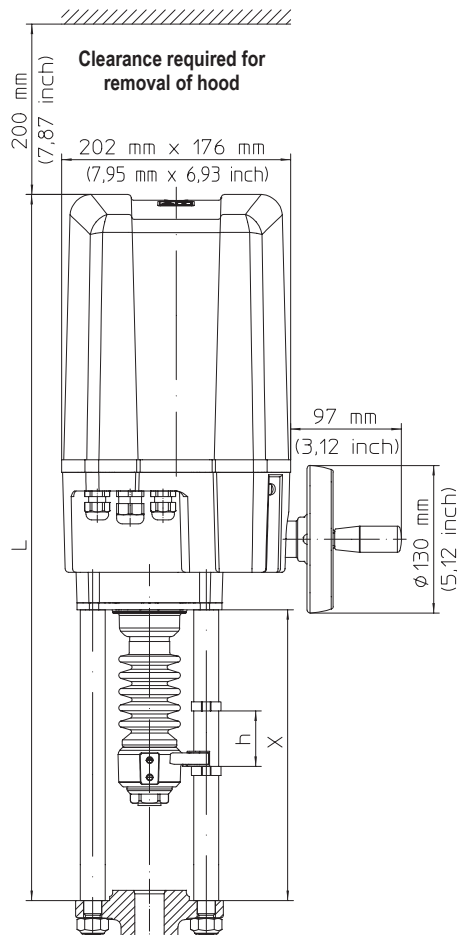
Please check the operating direction of the actuator!



**ARI-PREMIO 2,2 - 5 kN (495 - 1124 lbf)**  
Nominal travel max. 30 mm (1,18 inch)



**ARI-PREMIO 2,2 - 5 kN (495 - 1124 lbf)**  
Nominal travel > 30 mm - 50 mm (> 1,18 inch - 1,97 inch)



**ARI-PREMIO 12 - 15 kN (2698 - 3372 lbf)**  
Nominal travel max. 80 mm (3,15 inch)

X	L	h
(mm)	(mm)	(mm)
236	602	max. 30
256	622	max. 50
271	637	max. 65
286	652	max. 80

X	L	h
(inch)	(inch)	(inch)
9,29	23,70	max. 1,18
10,08	24,49	max. 1,97
10,67	25,08	max. 2,56
11,26	25,67	max. 3,15



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GERMAN QUALITY VALVES

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